Iraq Reconstruction Progress Report

SECTION

2

SECTOR SUMMARIES

INTRODUCTION

This section reviews and analyzes the U.S. reconstruction effort in Iraq to answer the question: "What is the current progress of U.S. programs in specific reconstruction sectors in Iraq?" The Special Inspector General for Iraq Reconstruction (SIGIR) applies three metrics to answer this important question:

- *Activities* measure the day-to-day actions that are within the direct control of implementing agencies and are managed at the contract or contractor level. This metric relies on current project data obtained from the U.S. Agency for International Development (USAID) and U.S. Army Corps of Engineers, Gulf Region Division, Project and Contracting Office (GRD-PCO.)[1]
- *Outputs* measure the direct results of completed projects and expended dollars; that is, the actual effects produced by the U.S. investment in Iraq's reconstruction.
- *Outcomes* measure the broader benefits realized by Iraqis from investment in each reconstruction sector.

To date, the U.S. reconstruction effort has been managed primarily through the use of Activity metrics, including the number of project starts and completions and the total dollars obligated and expended. However, the reliability of the data driving these Activity metrics is questionable, as revealed by SIGIR reviews of the reconstruction program's information systems.

Adding Output and Outcome metrics to the analytic mix will deepen and clarify SIGIR's analyses of U.S. reconstruction performance in Iraq. These metrics link expenditures of U.S. funds to both specific restorations of essential services and overall improvements in the quality of life for Iraqis. This section reviews progress in each reconstruction sector, which will include a comparison of current Output and Outcome metrics to the original goals stated by the Coalition Provisional Authority (CPA) in 2003. Although these CPA numbers are obviously obsolete, they nevertheless provide discrete historical benchmarks for comparative measurement.

This section focuses on three essential service sectors—Electricity, Oil and Gas, and Water. In later Reports, SIGIR will expand the analytical effort to all reconstruction sectors. For information about the definitions of these and other sectors, see Appendix J.

Recent Progress

SIGIR's initial analysis of reconstruction progress through Activities, Outputs, and Outcomes metrics leads to two critical conclusions:

1. Although completed reconstruction projects generally have delivered expected outputs—more capacity in megawatts, increases in barrels of oil per day, and millions of additional cubic meters of treated water per day—these outputs have not enabled Iraq to meet current demand. After 18 months of intense reconstruction

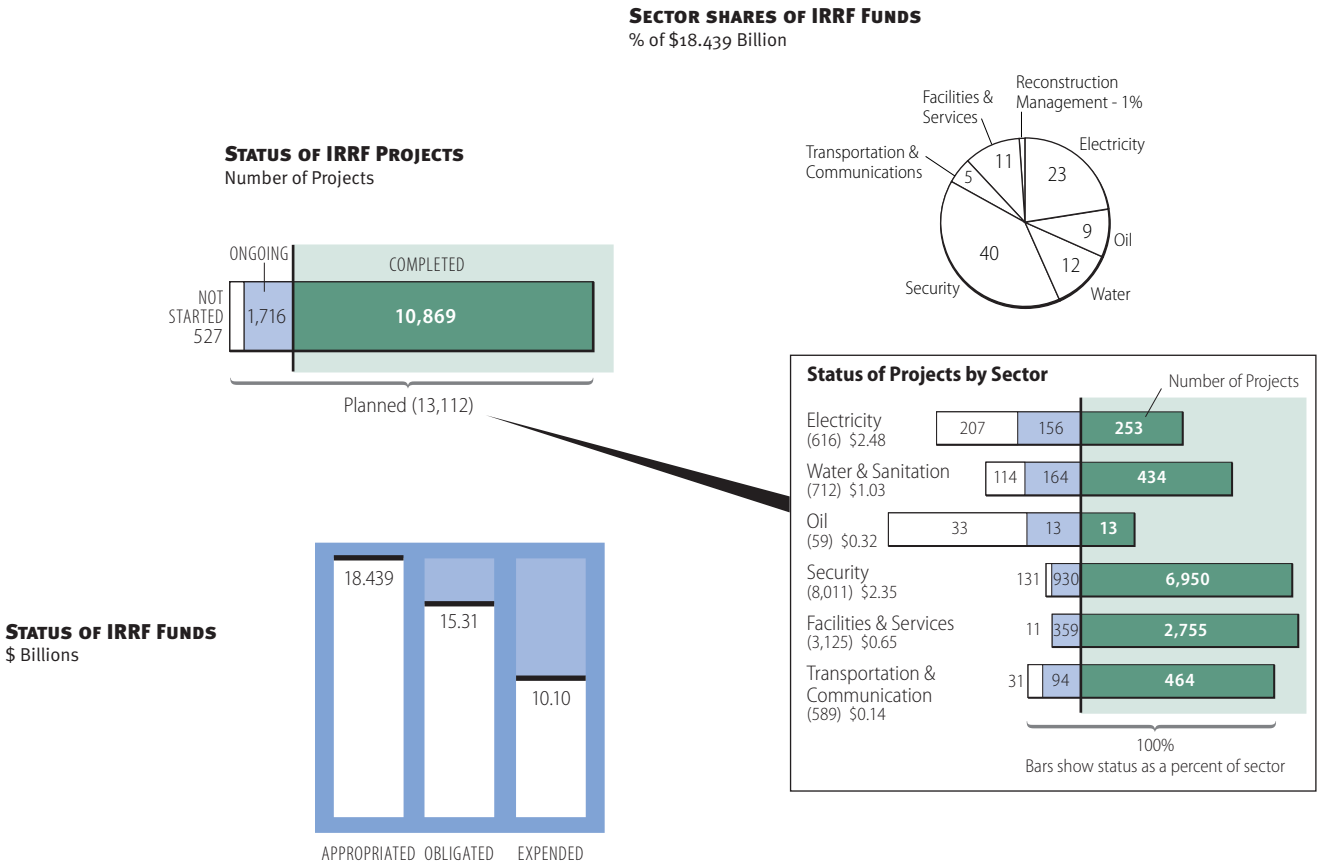
activity, many services have not returned to pre-war levels, particularly in the Electricity sector and the Oil and Gas sector.

2. Based on the pace of construction project starts and completions, and the rate of Iraq Relief and Reconstruction Fund (IRRF) expenditures, it is difficult to forecast with any confidence the end-date for U.S. government construction programs. With the untenable costs of an extended presence in Iraq, this becomes a critical concern and warrants further review. Figure 2-1 offers an overview of reconstruction progress.

Figure 2-1

Overview of Reconstruction Progress

As of December 31, 2005



STATUS OF THE ELECTRICITY SECTOR

The SIGIR Electricity sector review examines projects intended to rebuild Iraq's infrastructure for the generation, transmission, and distribution of electricity. U.S. efforts to reconstruct the sector have focused largely on reconstructing and rehabilitating generation, transmission, and distribution networks, as well as system control and communications.

Figure 2-2 shows the locations of completed and ongoing projects in this sector.

IRRF-funded Activities in the Electricity Sector

Although 253 projects have been completed in this sector, 207 (34%) have yet to begin. There are several reasons for this apparent lag. First, the substantial funding re-allocations in this sector caused project delays and cancellations. Second, in design-build projects, the initial design and procurement work that precedes construction can take significant time. Third, many of these cancellations demonstrated that officials and contractors decided during the design process that a project may be too risky or costly to complete effectively.

The completion of projects in the Electricity sector (41%) lags behind other sectors. Last quarter, 15 projects were completed and 47 were started. GRD-PCO expects all of its projects, 425 out of 616 total sector projects, to be completed by January 2008.[2] Figure 2-3 shows the status of projects in the Electricity sector.

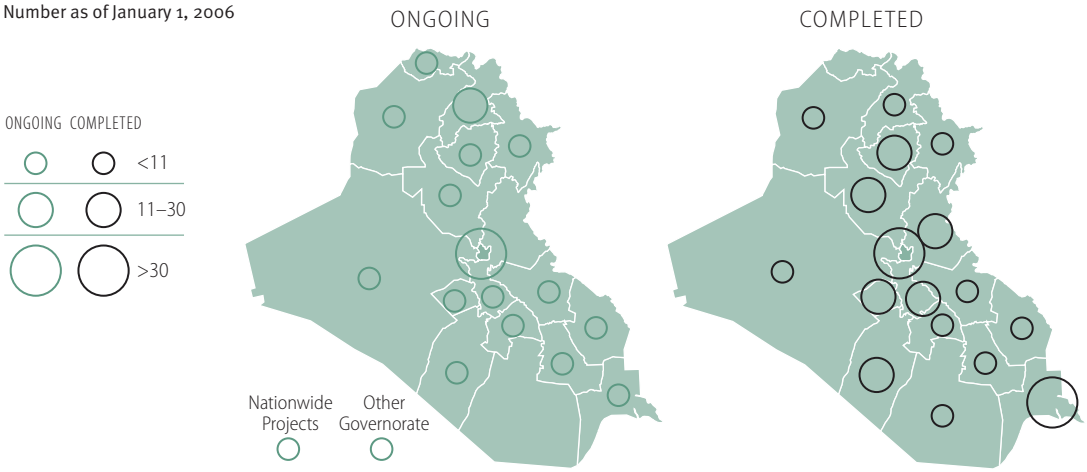
Almost $2 billion of the funds designated for electricity reconstruction–42% of the cumulative allocated total–have been expended. Last quarter, $144 million were expended in the sector. Figure 2-4 shows the status of funds in the Electricity sector.

In 2003 and 2004, U.S. reconstruction efforts in the Electricity sector began with USACE Task Force-Restore Iraqi Electricity (RIE), which managed $1 billion in mostly Development Fund for Iraq (DFI) monies.

Figure 2-2

ELECTRICITY PROJECTS BY GOVERNORATE

Number as of January 1, 2006



STATUS OF ELECTRICITY SECTOR

AS OF DECEMBER 31, 2005

Figure 2-5

ELECTRICITY SECTOR AS A SHARE OF IRRF FUNDS

% of $18.439 Billion

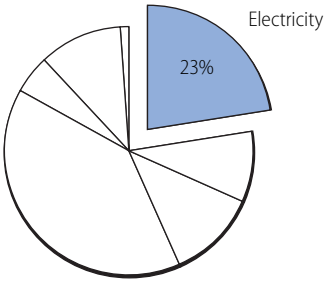


Figure 2-3

STATUS OF ELECTRICITY PROJECTS

Number of Projects

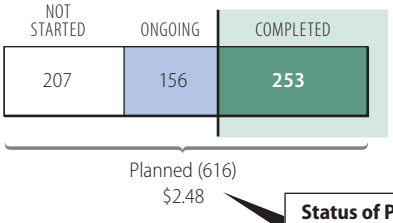
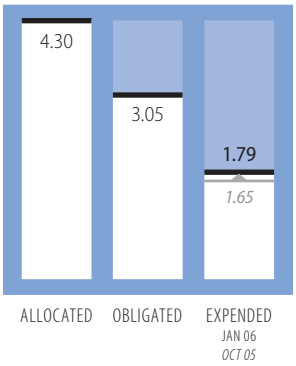
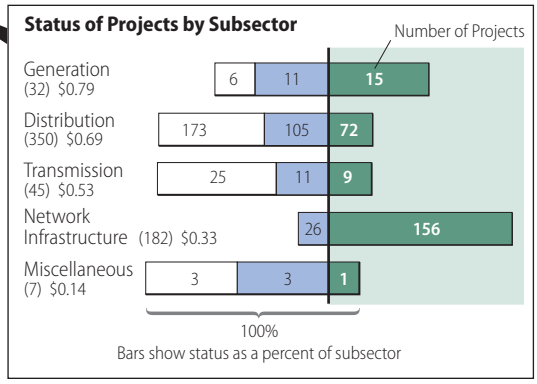


Figure 2-4

STATUS OF ELECTRICITY FUNDS

$ Billions





Initial projects focused on immediate needs. Construction and rehabilitation projects in the sector were later transferred to PCO, and USACE-GRD retained the construction management of projects. Thus, many projects in the sector were started under RIE contracts, while other projects were added later using IRRF dollars.

In 2004, according to PCO, the contracting approach began to shift from large, design-build, indefinite delivery-indefinite quantity (IDIQ) contracts to direct contracting methods, in an attempt to speed work and lower its costs. SIGIR currently has an audit underway to examine the efficiencies of design-build compared to direct contracting.

MAJOR PROJECTS COMPLETED AND ONGOING

The U.S. program has three major types of Electricity sector projects:

- *Generation facilities* produce the total megawatt capacity of power for the system.

- *Transmission networks* then carry that power throughout the country.
- *Distribution networks* deliver the transmitted power to local areas and homes.

Most U.S. projects focus on the distribution system while a limited number are large-scale generation projects that feed that system.

Generation

Two of the largest power generation reconstruction projects will significantly affect the Baghdad area when completed. The *Al-Doura* power plant, estimated to be completed in February 2006, is expected to add 280 megawatts (MW) to the electric grid, which will serve more than 1.5 million people.[3] Like many other power facilities in Iraq, *Al-Doura* was in great need of repair at the cessation of hostilities. U.S. officials chose to refurbish it rather than build a new plant. The second facility, the *Baghdad South* power plant, received two new power generators, adding 216 MW of power to the grid last quarter and serving the equivalent of 122,000 homes.[4]

Additionally, the installation of two gas turbine units at the *Khor Al Zubayr* power plant will supply 250 MW of power for 1.5 million residents in Basrah and can be distributed to the rest of Iraq as well.[5] According to GRD-PCO, this project was completed in early January 2006.

Transmission

Two important initiatives for improving transmission capabilities are ongoing in this sector. The Project Partnership Agreement (PPA), signed on November 30, 2005, is intended to execute specific projects in partnership with the Iraqi Ministry of Electricity, which in turn awards contracts for these projects to Iraqi firms.[6] According to GRD-PCO, the Ministry is reimbursed based on verification of work completed or milestones met by the contractor. The PPA is also expected to reduce overall costs, promote capacity development for the Ministry and contractors, and direct more work toward Iraqi firms.

Since 2004, the Direct Contracting Initiative (DCI) has shifted the emphasis from design-build contracting to a more standard firm fixed-price approach. This shift is designed to transfer risk from the U.S. agencies to the contractor and to position the U.S. government to limit cost increases and schedule delays. The downside, however, is that it takes the U.S. government longer to award contracts because of staffing constraints.[7]

Distribution

Similar to the DCI, the Rapid Contracting Initiative (RCI) was initiated in late 2004 to focus on the direct contracting of small distribution projects by using fixed-price contracts that are fully competitive. This potentially can make

Current Status of Electricity Reconstruction vs. Goals

(Megawatts)

End-state Metric	Pre-war Level	Stated Goal by CPA (2003)	End-state after Deferral[14]	Current Status as of 11/30/05
Generation Capacity	4,500	4,400 by late 2003, 6,000 long-term	5,500	3,995 (U.S. Contribution 2,710)
Transmission Capacity	4,500	6,000*	5,500	5,500

*There does not seem to be a record of a transmission capacity goal, but the current goal is to match the generation capacity of 6,000 MW.
Sources:
Pre-war levels: United Nations/World Bank Joint Iraq Needs Assessment, 2003
Goals: Coalition Provisional Authority FY 2004 Supplemental Request to Rehabilitate and Reconstruct Iraq, September 2003; Letter from L. Paul Bremer to White House, March 24, 2004
Current Status and End-state: Department of State Briefing by U.S. Embassy Baghdad, November 30, 2005.

Table 2-1

the contracting process better, faster, and less expensive than more traditional contracting strategies. Most of the projects not yet started in the Electricity sector will be executed as RCI projects to local Iraqi firms.[8]

O&M/Sustainability

GRD-PCO has begun a host of projects aimed at addressing the operations and maintenance (O&M) and sustainability concerns in the Electricity sector. GRD-PCO has allotted just more than $120 million to the O&M Program and proposed $340 million in funding to the Sustainability Program, including:

- efforts to train workers and officials to maintain U.S. assets
- critical parts and inventory support
- long-term O&M support services

Even though these initiatives present a significant start toward addressing an important concern, a SIGIR audit estimates that total costs for sustainment and O&M in the Electricity sector for 2006-2007 will be approximately $720 million.[9]

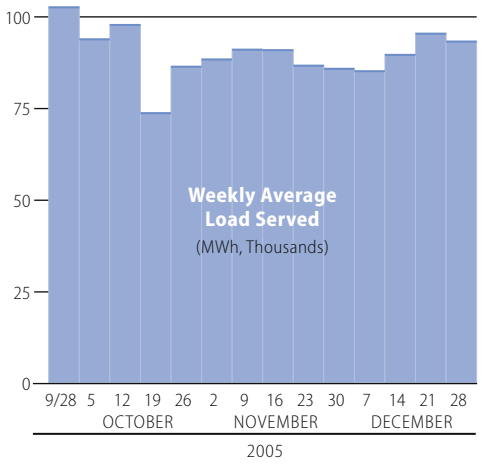
Monitoring and Control

The Supervisory Control and Data Acquisition (SCADA) system, signed on October 5, 2005, is designed to enable real-time control of the transmission system and to improve monitoring and the overall stability of the electricity system. SCADA can automatically isolate disruptions to a line or station, which should protect the rest of the grid and reduce the risk of larger, nationwide blackouts.[10]

SECTOR FUNDING CUT

Initially, the Electricity sector was funded by $5.56 billion,[11] from a total reconstruction appropriation of $18.4 billion. A series of reallocations that resulted in a 22% cut of sector funding, to $4.31 billion. Figure 2-5 shows the percentage of IRRF funds committed to the Electricity sector.

Figure 2-6
ELECTRICITY LOAD SERVED
MWh = Megawatt Hour



Outputs of IRRF-funded Projects

The primary output metrics for the Electricity sector are generation and transmission capacity, both measured in megawatts.[12] Both areas have fallen short of the original reconstruction goals set by the CPA. Before U.S. operations in Iraq in 1991, Iraq's electricity capacity (9,295 MW) was more than enough to meet the nation's demand (5,100 MW). But the Persian Gulf War severely reduced capacity to 2,325 MW. By March 2003, capacity had increased to 4,500 MW.[13] Today, demand is nearly double the total generation capacity.

Table 2-1 compares current electricity generation and transmission capacities with the original CPA goals.

Electricity sector output is still falling short of goals. Generation capacity is more than 2,000 MW below the goal stated in 2003. Because all parts of the grid must work together, this shortfall in generation means that the benefits of increased transmission and distribution capacity cannot be realized. A USAID audit found that this shortfall is partly caused by external factors, such as security and budget shifts.[15]

Outcomes

Completed projects are meeting expected outputs in this sector, but the Iraqi populace is

ELECTRICITY SECTOR OUTCOMES

OUTCOME METRIC	PRE-WAR LEVEL	STATED GOAL BY CPA	END-STATE AFTER DEFERRAL[16]	CURRENT STATUS, AS OF 01/02/06[a]
Iraq Hours of Power/Day	4-8	NA	10-12	10.2
Baghdad Hours of Power/Day	16-24	NA	10-12	3.7

[a]Hours of power/day has reached higher levels during this reporting quarter. The data in the table is the most recent information available. It is difficult to assess the overall benefits provided nationwide in this sector. Iraqis living in Baghdad have only 10-12 hours of power per day—less than Baghdad received under Saddam Hussein's regime when electricity was diverted from other parts of the country to power the capitol. Those living outside Baghdad, however, will likely have more hours of power than before the war. SIGIR interviews indicate that there was a strategic shift by the Iraqis to provide power more equitably throughout the country, instead of focusing on Baghdad as Saddam Hussein did.
Sources:
Pre-war level and End-state: DoS Briefing by U.S. Embassy-Baghdad, November 30, 2005.
Current: DoS *Iraq Weekly Status* report, January 3, 2006.

TABLE 2-2

not yet seeing the benefits of additional power. One important reason is that demand continues to grow faster than capacity can be brought online.

The number of hours of electricity service that Iraqis receive each day is a key measure of the benefits of the improved Electricity sector. Table 2-2 presents these metrics in relation to the pre-war levels, as of the end of this reporting period. Figure 2-6 shows the electricity load served in 2005.

Challenges

Progress in reconstructing the sector faces significant challenges, including security, high demand, and deteriorated infrastructure.

SECURITY ABSORBS MORE FUNDING THAN EXPECTED

One of the most important challenges facing the U.S.-led effort to develop the Electricity sector is insurgent attacks. Well-organized attacks on the electricity infrastructure have caused power outages, sometimes on a national level. These attacks were linked to the Oil and Gas sector by targeting the delivery of Iraq's limited refined fuel stocks for use in electric generation.[17] Attacks on infrastructure and personnel have also slowed reconstruction progress by forcing funds to be diverted from project development to increased security. In March 2005, two USAID electricity generation task orders were cancelled to shift $15 million to security.[18]

This makes effective Iraqi assumption of security duties essential. It may take several years for the threat to diminish significantly.

RISING DEMAND

During summer 2005, generation capacity peaked at 5,375 MW but fell short of projected demand for that period. But even if all project goals were met, the Electricity sector still would not be able to meet the increasing demand. Iraq's demand for power remains high [currently 7,000+ MW according to the Iraq Reconstruction and Management Office (IRMO)], which the Ministry of Electricity attributes to the creation of new jobs, industries, and factories as the economy begins to recover from the former regime. Additionally, an influx of new appliances and new customers has increased the grid's exposure to consumer demand. The Government Accountability Office (GAO) also reported in July 2005 that electricity requirements are affected to some degree by illegal taps into the grid and by a lack of metering.[19]According to the U.S. Institute of Peace, electricity subsidies have contributed to this spike in demand and have played a large role in electricity shortages around the country.[20]

The consequences are still a major concern, particularly as demand increases in the winter and summer. The Department of State (DoS) *Iraq Weekly Status* report shows that the estimated demand for electricity outpaces what is generated: The load-served falls short of demand by almost 60,000 megawatt hours (MWh).[21] GRD-PCO reports that the key

to addressing excess electricity demand and consolidating the long-term viability of the Iraqi power supply is to reform the process of charging consumers for usage.

DETERIORATED INFRASTRUCTURE

Compounding the problems associated with operating in a highly insecure environment, the electricity infrastructure was kept in significant disrepair throughout the 1990s and leading up to the March 2003 conflict. This disrepair extended throughout all three components of the Electricity sector—generation, transmission, and distribution—and was characterized by decades of constant operation without regular maintenance. GAO reports that spare parts were largely unattainable throughout the 1990s because of international sanctions following the Persian Gulf War, thus requiring extensive overhaul of antiquated equipment that is now difficult to procure. The effects of this degraded infrastructure were worsened by post-war looting and sabotage.[22] Immediately after Operation Iraqi Freedom, Iraq's ability to generate electricity dropped to less than 2,000 MW and all of the nation's power stations were in poor condition from years of deferred maintenance.[23]

STATUS OF THE OIL AND GAS SECTOR

This review of the Oil and Gas sector examines projects intended to rebuild Iraq's oil and natural gas wells, pipelines, and refineries. Projects in the Oil and Gas sector contribute to crude oil production, processing, gas and oil separation plants, and distribution. U.S.-funded activities in the Oil and Gas sector have primarily been limited to the rehabilitation, repair, and expansion of existing facilities.[24] Rehabilitated oil projects accounted for approximately 75% of oil production in Iraq, as of November 30, 2005.[25] However, less than half of the allocated funds have been expended, and less than a quarter of the planned projects have been completed.

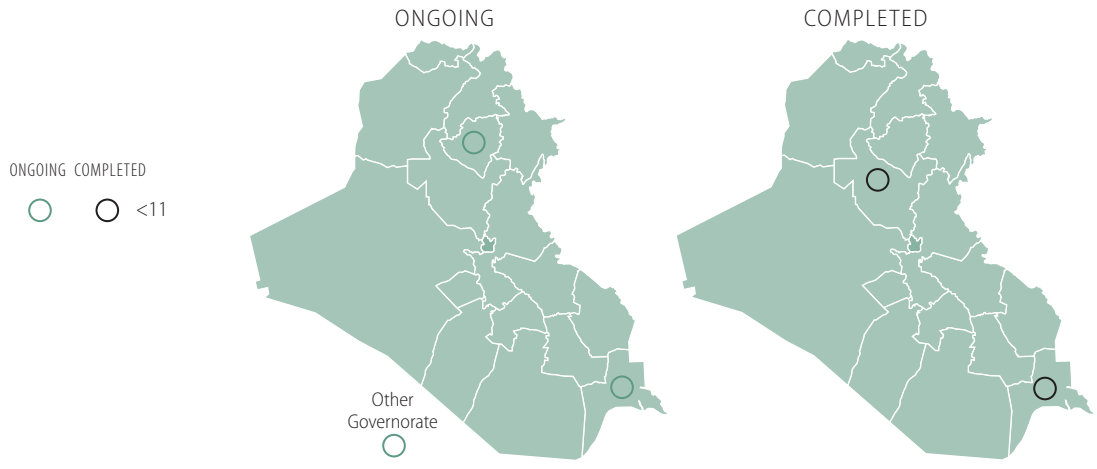
This section measures progress in the Oil and Gas sector by reviewing capacity, production, and exports. *Capacity* is the potential output in the Oil and Gas sector if production is at 100% efficiency. The U.S. reconstruction program has significantly increased the output potential of the Oil and Gas sector. GRD-PCO reports that Iraq has the capacity to produce 2.5 million barrels per day (MBPD) of crude oil, which is the same capacity it had before the war. *Production* is the actual per day output in the Oil and Gas sector. The rough average for crude production output during the quarter was 2.0 MBPD, according to DoS *Iraq Weekly Status* reports. *Exports* measure how much of Iraq's oil production actually makes it to the foreign markets.

The potential for return on investment has been one of the key factors for project prioritization. GRD-PCO officials estimate that every dollar invested in the oil infrastructure is expected to yield a recurring annual return of five dollars. Efforts have focused on the reconstruction or refurbishment of facilities in the two primary areas of oil production: Kirkuk in

Figures 2-7

OIL AND GAS PROJECTS BY GOVERNORATE

Number as of January 1, 2006



Status of Oil and Gas Sector
As of December 31, 2005

Figure 2-10
Oil and Gas Sector as a share of IRRF Funds
% of $18.439 Billion

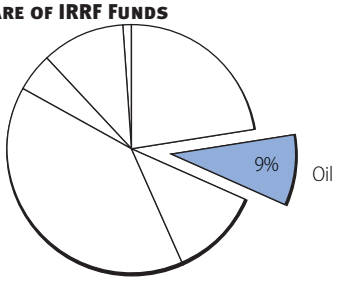
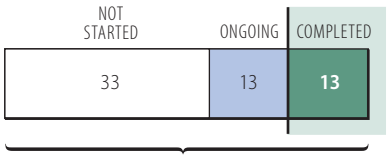
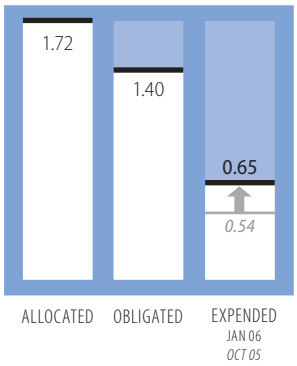


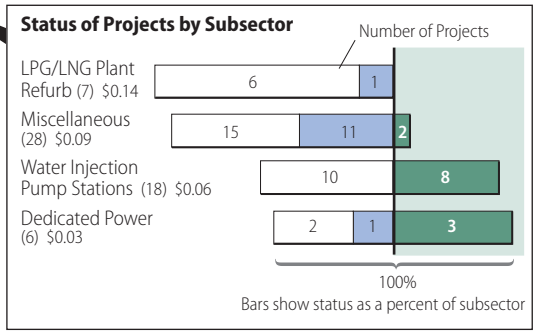
Figure 2-8
Status of Oil and Gas Projects
Number of Projects



Planned (59)
$0.32

Figure 2-9
Status of Oil and Gas Funds
$ Billions





the north and Basrah in the south.

Figure 2-7 shows the location of completed and ongoing projects.

IRRF-funded Activities in the Oil and Gas Sector

Of the 136 Oil and Gas projects, 67 are Engineering and Procurement (EP) projects, and 69 are Engineering, Procurement, and Construction (EPC) projects. Of the 69 EPC projects, 10 are reported to be administration projects, and 59 are construction projects. In this report, SIGIR includes supporting data for the 59 EPC projects shown in Figure 2-8.

Almost half of the 59 planned EPC projects have been initiated, and 22% have been completed, according to the Department of Defense (DoD) data. During the past quarter, two projects were completed, five were started, and one was slated to begin on December 31, 2005. Despite schedule delays and an apparent lag in the project completion rate, GRD-PCO expects that this rate will increase as long-term projects draw closer to completion. The pace of work on these projects should also increase significantly as the Iraqi role continues to expand. Figure 2-8 shows the status of projects in the Oil and Gas sector.

Despite progress in Iraq on many important ongoing projects, less than half of the sector's allocated funds have been expended. Figure 2-9 shows the status of funding for the Oil and Gas sector.

KEY PROJECTS COMPLETED AND UNDERWAY

During this reporting period, several important oil projects made substantial progress. One of the most important, the *Al Fatah Pipeline River and Canal Crossing Project* in the Tameem governorate, is now roughly 72% complete, with an estimated termination date of March 1, 2006.[26] This facility is a key transfer point in moving crude oil from northern fields to local refineries and then to export. When complete, the project is expected to provide at least an additional 300,000 barrels per day (BPD) through the Iraq-Turkey Pipeline for export via the port of Ceyhan.[27] *Al Fatah* currently has working temporary lines installed, as well as an additional operating oil line under the river. Included in this Quarterly Report is a project assessment of *Al Fatah.* The assessment reports on the original planning and implementation of the project, as well as some of the challenges it initially faced.

The *Qarmat Ali* water injection system and treatment plant project in southern Iraq is another important initiative that made good progress during the quarter. As of the middle of December, the plant was 70% complete, and the next phase of work is slated to increase injection capacity to 100% of goal. The initiative aims to boost oil production by as much as 200,000 BPD.[28] This project will improve oil extraction at more efficient rates and thus will boost production levels.

On October 6, 2005, repairs began on the *Al Basrah Oil Terminal (ABOT)*. Slated for completion on December 31, 2006, the *ABOT* Task Order was approximately 31% complete as of late December 2005. It comprises 13 individual projects, the first of which is currently 61% complete. The scope of the project is to refurbish three hydraulic control units for loading arms and to replace one damaged unit, giving the facility the capability to load four cargo ships at once.[29]

The *ABOT* facility is an important project for improving Iraqi export capabilities in the south. GRD-PCO officials noted that the usefulness of the repaired *ABOT* will still be limited by inadequate on-shore pipeline and pumping capabilities. They also state that the primary benefit of *ABOT* is the implementation of a new metering system for exports that will help prevent theft and reduce corruption. This metering system also meets a key requirement for Iraqi debt management milestones.

FUNDING FOR THE SECTOR REMAINS MOSTLY CONSTANT

In November 2003, Congress allocated $1.89 billion for reconstruction projects in Iraq's Oil and Gas sector. Most of these funds ($1.2 billion) were allocated to infrastructure reconstruction; the remainder (about $690 million) was used to purchase emergency supplies of refined petroleum products. As a result of

subsequent allocation changes—primarily from the IRRF Strategic Spending Review in 2004—funding for infrastructure development jumped to $1.697 billion, and funding for emergency refined stocks decreased to $26 million.[30] The current allocation to the Oil and Gas sector is $1.72 billion.

In 2004, CPA estimated that $8 billion would be required to adequately meet the needs for reconstructing the Oil and Gas sector.[31] U.S. officials have consistently maintained that the purpose of the reconstruction program is to get the reconstruction effort moving. It was always assumed that international donors and Iraqi oil exports would provide sufficient additional financing for the remainder of the effort. Figure 2-10 shows IRRF allocation for the sector.

Outputs of IRRF-funded Projects

There are at least two ways to measure progress in reconstructing the Oil and Gas sector, and output goals in this sector abound. One method is to focus on production capacity, which measures how many units of energy the country as a whole is capable of producing on a daily basis. The other is a simple measurement of current production per day. Table 2-3 focuses on current Iraqi production capacity goals. This information, from GRD-PCO, provides insight into how production capacity is progressing, but it does not offer a clear picture of current production. Table 2-4 focuses on actual production and U.S. reconstruction goals, using measurement information from U.S. Embassy-Baghdad. According to the report, rehabilitated oil projects accounted for approximately 75% of oil production, as of November 30, 2005.

Petroleum Product Production Rates and Goals

Objective	Current	Iraqi Government End-State Goal (December 2006)	Remains To Be Achieved
Crude Oil Production Capacity (MBPD)	2.5	3.0	0.5
Crude Oil Exports (Actual)[a] (MBPD)	1.7	2.4	0.7
Natural Gas Production (MSCFD)[b]	600	800	200
Liquefied Petroleum Gas (LPG) Production (TPD)[c]	1,200	3,000	1,800

[a] PCO reports 1.7 MBPD in its Oil and Gas Sector History, but the average for the quarter according to figures in the DoS *Iraq Weekly Status* report is about 1.16 MBPD.
[b] MSCFD = million standard cubic feet per day
[c] TPD = tons per day
Source: GRD-PCO Sector History for the Oil and Gas sector, received on January 13, 2006.

Table 2-3

ACTUAL OIL SECTOR PRODUCTION VS. U.S. RECONSTRUCTION GOALS AS OF NOVEMBER 30, 2005

END-STATE METRIC	PRE-WAR LEVEL (2003)	POST-WAR LEVEL (2003)	U.S. END-STATE GOAL	IRAQI GOVERNMENT END-STATE GOAL (TEN-YEAR)	CURRENT STATUS[f]
Crude Oil Production Capacity[a] (MBPD)	2.6	0.6	3.0	6.0[b]	2.6
Crude Oil Production (MBPD)	2.6	0.6	2.8 U.S. Contribution: 1.9	6.0	2.1 U.S. Contribution: 1.5
Exported[a]	2.0	-	2.2	5.0	1.6
Natural Gas Utilization (MSCFD)[c]	850	200	800 U.S. Contribution: 600	5,000	600 U.S. Contribution: 400
Liquefied Petroleum Gas[d] Production (TPD)[e]	5,000	1,200	3000 U.S. Contribution: 1800	6,000	1,700 U.S. Contribution: 500

[a] U.S. Embassy-Baghdad reports different capacity numbers than GRD-PCO, probably due to the date difference.
[b] 6.0 MBPD is also the crude production capacity goal set forth in the Iraqi National Development Strategy, June 30, 2005.
[c] MSCFD = million standard cubic feet per day
[d] Critical refined fuels are measured in a metric amount (as are these), or in days of supply. The text focuses on days of supply to use more stable numbers.
[e] TPD = tons per day
[f] According to the IRMO Senior Consultant to the Ministry of Oil, the methodology for determining the U.S. contribution to overall production levels was to subtract post-war production (about 600,000 BPD were attributed to Iraqi restoration efforts) from the production level as of November 30, 2005 (2.1 MBPD), thus resulting in a total U.S. contribution of 1.5 MBPD.
Source: DoS Briefing by U.S. Embassy-Baghdad Oil Metrics, November 30, 2005.

TABLE 2-4

The unsurprising fact revealed in these tables is that production capacity has improved as the reconstruction effort has picked up momentum. The end-state goal is 3.0 MBPD in production capacity, which will exceed the pre-war production rate.

Although U.S.-funded projects are having a positive effect on output in the Oil and Gas sector, it remains difficult to meet the pre-war production level goals that CPA first set in October 2003. Security problems primarily account for the shortfall. The continued flat oil production rate is a point of particular concern because oil must fuel the engine of Iraq's economic growth.

Outcomes

Oil exports account for more than 95% of Iraq's national income. Iraq's highest production peak was in December 1979, when the country produced 3.7 MBPD. Much of its infrastructure and production capacity never fully recovered from the damage suffered in the Iran-Iraq and Persian Gulf Wars.[32] Iraq was producing approximately 2.5 MBPD from 1999 to 2001 and peaked at around 2.58 MBPD in January 2003.[33] The current Ministry of Oil goal for oil production is 2.5 MBPD, and the maximum consumption target for each of the four refined petroleum products is a 15-day supply.[34] As Figure 2-11 shows, crude oil production has hovered around 2.0 MBPD for most of this reporting period.[35]

A variety of problems have hindered exports of oil, which have remained much lower than expected, declining to about 1.1 MBPD in December.[36] For example, in late December 2005, threats against oil tanker operators and refinery workers at the Baiji refinery led many to refuse to work, effectively shutting down the facility. The good news for Iraq's oil export industry, however, is that high oil prices continue. Oil exports in 2005 earned almost $23 billion—up from approximately $17 billion in

Figure 2-11
CRUDE OIL PRODUCTION

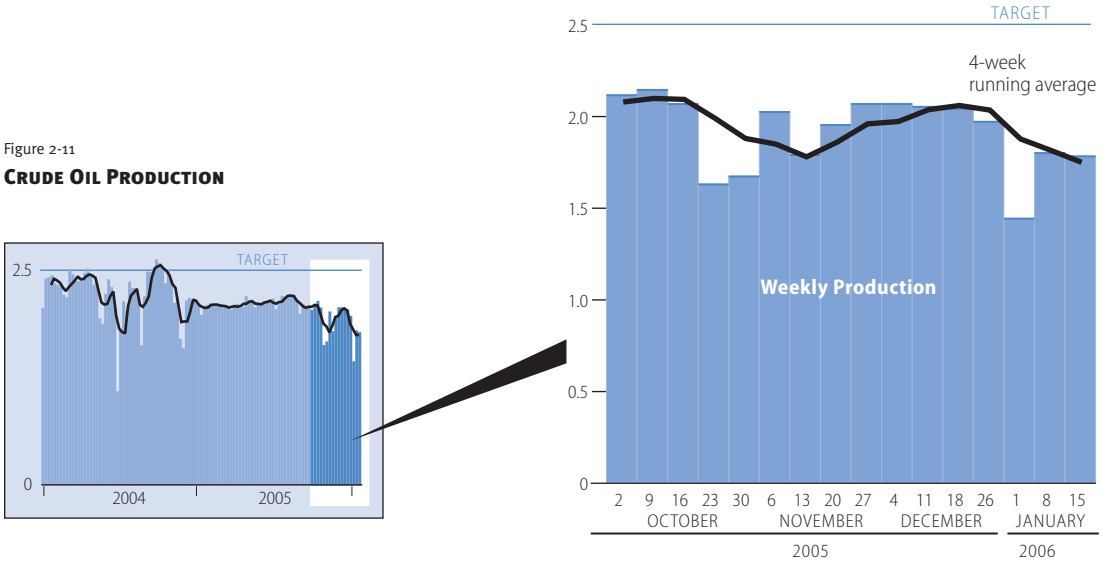
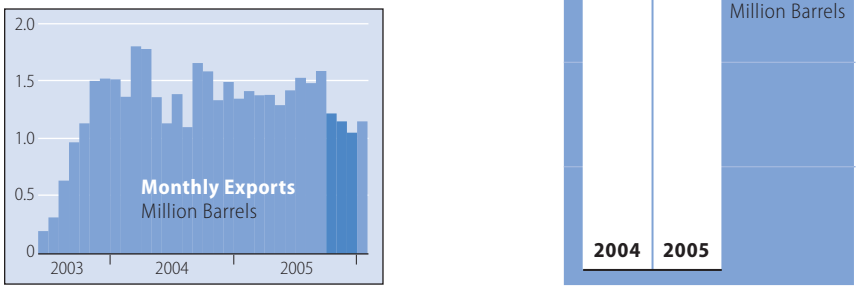


Figure 2-12
CRUDE OIL EXPORTS



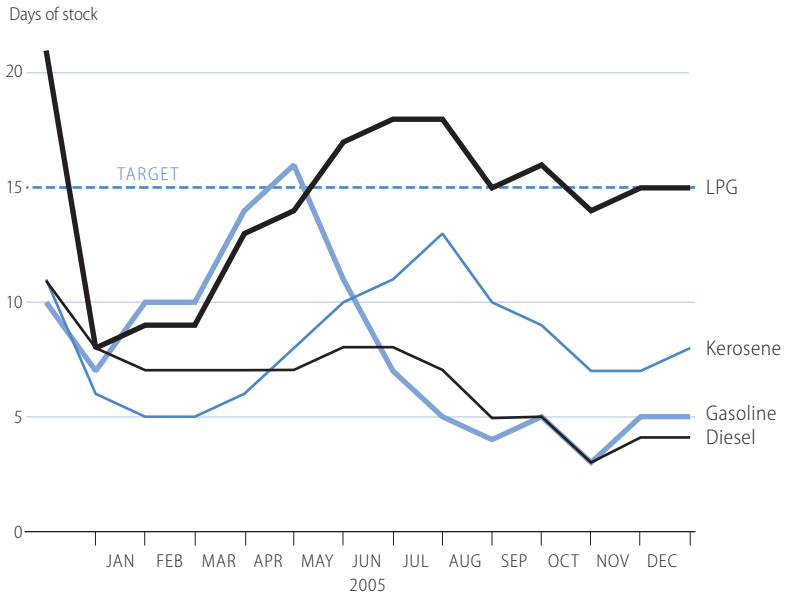


Figure 2-13
REFINED FUEL STOCK LEVELS

2004, as Figure 2-12 demonstrates.

Reaching production targets for critical refined fuels has also been a problem. Only liquefied petroleum gas (LPG) reached its target; diesel, kerosene, and gasoline have all lagged behind.[37] Figure 2-13 shows the stock levels for Iraq's refined fuels. Many of these supplies are imported into Iraq, costing approximately $200-250 million per month[38] while the government struggles to consolidate and sustain improved production and export levels. Fuel supplies are further strained when Iraq fails to pay exporters on time, which is likely to happen more often if the economy does not recover soon.

FUEL SUBSIDIES

Fuel subsidies kept prices abnormally low, thus encouraging unrestrained demand and a black market in smuggled fuel, which combined to further diminish the supplies of critical refined fuels. Direct and indirect subsidies also cost the Iraqi economy an estimated $8 billion per year, according to the U.S. Department of Energy.[39] In late December 2005, the International Monetary Fund (IMF) approved a Stand-By Arrangement for Iraq, which provides $685 million to support the Iraqi economic program over the next 15 months.[40] One critical aspect of this arrangement is that the Iraqi government must reduce fuel subsidies, price distortions, smuggling, and corruption.[41] Measures taken by the Iraqi government to address the subsidy issue since late December 2005 should help mitigate high fuel demand, smuggling, and corruption concerns, but the subsequent riot in Kirkuk and the temporary upheaval in the Ministry of Oil suggest that the issue is not yet fully resolved.

For the most part, reconstruction levels for the Oil and Gas sector have not reached target levels since October 2004, and some industry experts question whether the sector has the capacity to do so in a sustainable manner. For instance, one recent commodities industry report suggests that investment dollars are being distributed too slowly and to the wrong projects.[42] The October constitutional referendum and the December election of a new Iraqi government, however, indicate that Iraq is moving toward a greater degree of coherence, and therefore will be better prepared to execute reconstruction priorities going forward.

Challenges

Three challenges have been associated with slow project start and funding expenditure rates: security, sustainment, and the deteriorated infrastructure.

SECURITY

Security threats against the oil and gas infrastructure take many forms, ranging from the illicit acts of individual looters to the organized activities of complex crime syndicates. Although criminal threats such as these remain a serious concern for the integrity and security of Iraq's oil infrastructure, no threat has been more debilitating than the incessant insurgent attacks. According to one study cited by the U.S. Department of Energy, there have been close to 300 attacks on Iraq's energy infrastructure since June 2003. These attacks have cost Iraq billions of dollars in infrastructure repairs and lost revenues,[43] as well as slowing the pace of reconstruction.

Insurgent attacks have clearly taken a heavy toll on the Oil and Gas sector in the north. For example, nearly continuous attacks on the Iraq-Turkey Pipeline have significantly reduced its capacity to generate sustained export revenues. Iraqi workers have also been targeted for attacks, especially when working at reconstruction sites. In early January 2006, for example, insurgents attacked a convoy of approximately 60 oil transport vehicles from the Baiji facility; about one-third of the vehicles were reportedly destroyed or disabled.

According to GRD-PCO, the economic importance attributed to developing the Oil and Gas sector serves as a potential "single point of failure" that will require diligent application of security and military forces to protect the oil and gas infrastructure from further attacks. The Iraqi military is currently meeting the threat through increased security and field activities, supplemented by coalition forces.[44]

SUSTAINMENT

Sustainability continues to be an important factor in explaining the lack of significant progress in Oil and Gas sector reconstruction. In October 2005, a SIGIR audit found that sustainment among Iraqi workers remains a crucial requirement for the successful reconstruction of the sector. The audit estimated that approximately $178 million would be required for Oil and Gas sector sustainment in 2006-2007.[45] The preparedness of Iraqi workers to operate and maintain modern technology in producing and refining oil is still as important in the reconstruction process as preventing insurgent attempts to destroy that equipment.

Crude re-injection continues to cause concern. Iraqis use this technique to return excess pumped crude oil back into the ground—mostly because they lack sufficient storage and export capacity to handle the volume of crude oil currently being pumped. Unfortunately, crude oil re-injection increases oil viscosity, making it more difficult and costly to extract

oil. The viscosity problem has already occurred at Kirkuk, and may have permanently damaged the fields.[46]

Although outputs generated by U.S.-funded projects provide a significant improvement in this sector, oil production levels still have not reached the stated target. This is due in no small part to sustainment issues related to O&M and capacity development. O&M is a particular concern for southern export and pumping stations. U.S. agencies and officials recognize the importance of this issue: both GRD-PCO and IRMO are working on initiatives to mitigate the risks to project sustainment in the reconstruction process.

More than a year ago, PCO joined IRMO and other U.S. agencies to begin working toward sustainability of U.S.-built facilities through a process called Capacity Development (CD). CD is one of the basic tools used to transfer knowledge, skills, and abilities to Iraqi workers at various infrastructure facilities. As a result, U.S. activities have helped to provide 300,000 hours of Oil and Gas sector training, operational testing and commissioning, and spare parts.[47]

INFERIOR QUALITY OF INFRASTRUCTURE HARDWARE

In the pre-war period, U.S. planning officials and energy experts underestimated the extent to which Iraq's oil infrastructure was degraded, as is highlighted by the testimony of a Kellogg Brown and Root, Inc. (KBR) official:

> *Once our engineers began work, they found that many oil facilities were in complete disrepair due to decades of neglect, as well as recent looting and sabotage. Many pipelines in the south were damaged during battles. Wellheads were rigged with explosives, some of which were triggered, causing greater damage and again creating significant risk for our employees…We found that the Iraqi oil equipment was old, neglected and often desperately in need of repair.*[48]
>
> *Alfred V. Neffgen—Chief Operating Officer of the KBR Government Operations unit—testifying before Congress*

Most of the infrastructure consisted of antiquated technology that was no longer available, which forced contractors to overhaul entire structures. Post-conflict looting and sabotage aggravated the integrity of the sector's infrastructure. Government assessments as of June 2003 stated that more than $900 million would be needed just to replace looted oil equipment, and this assumed a peace-time reconstruction environment.[49]

The capacity of the current infrastructure raises an additional problem for the Oil and Gas sector. For example, the lack of significant storage capacity for fuel in Iraq has caused shutdowns, leading to delays, revenue losses, and workers employing harmful techniques, such as fuel re-injection. Also, field decline is a particular problem in the southern oil fields, which currently account for a large majority of Iraq's oil production because insurgents have consistently targeted the northern oil pipelines.

STATUS OF THE WATER SECTOR

This review examines U.S. reconstruction projects intended to increase Iraqi citizens' access to clean water and sewerage services. Generally, U.S. efforts in this sector have focused on large-scale projects, but SIGIR notes a recent trend toward smaller projects that will yield quicker benefits. Over the past two years, more than half of the IRRF funding for the Water sector has been shifted to other sectors, reducing this sector's allocation from $4.33 billion to the current $2.13 billion. Figure 2-14 shows the locations of completed and ongoing projects in the Water sector.

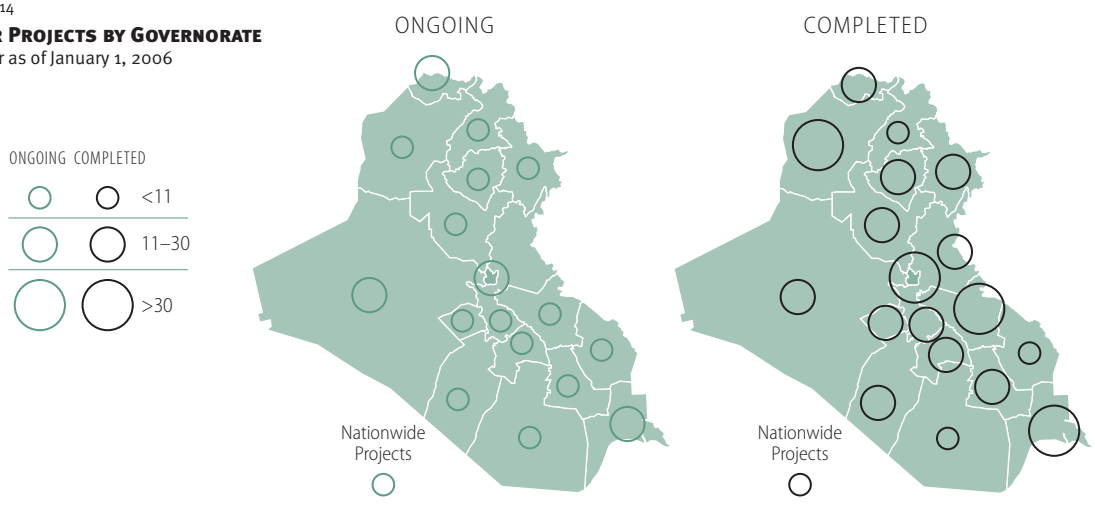
IRRF-funded Activities in the Water Sector

Of the projects planned for this sector, 61% have been completed. But the rate of completion of the ongoing projects appears to be slowing, and 16% of the planned projects have not yet started. The problem of the slowing completion rate in this sector could be offset by rapidly initiating projects that have not yet started and by accelerating work on ongoing projects. Figure 2-15 shows the status of projects in the Water sector.

Last quarter, $295 million was expended in the Water sector. However, SIGIR expects that the rate of expenditure should rapidly increase in the coming months as projects shift from the design phase to the build phase.[50]

The $2.1 billion in U.S. funding in the Water sector primarily has funded large-scale projects. In 2003 and early 2004, USAID and PCO awarded five contracts that represented the majority of IRRF dollars obligated in this sector. The contracts went to a small number of firms, including a USAID contract to Bechtel

Figure 2-14
WATER PROJECTS BY GOVERNORATE
Number as of January 1, 2006



Status of Water Sector

As of December 31, 2005

Figure 2-17

Water as a Share of IRRF Funds

% of $18.439 Billion

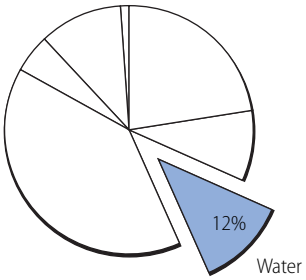
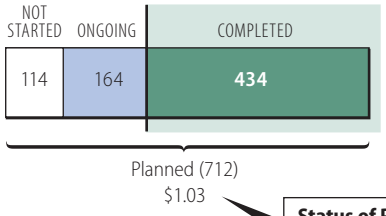


Figure 2-15

Status of Water Projects

Number of Projects



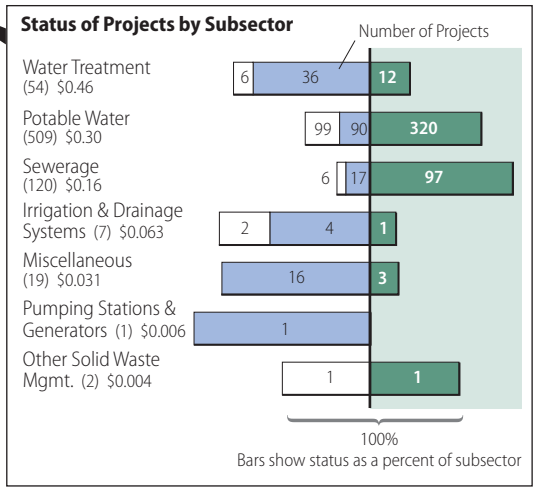
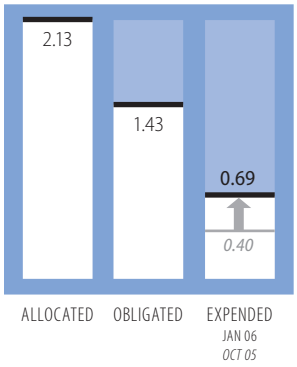


Figure 2-16

Status of Water Funds

$ Billions



for work across multiple sectors in April 2003. In January 2004, Bechtel was awarded a second, competitively bid, multi-sector reconstruction contract. And in March 2004, two different competitively bid PCO contracts were awarded for Water sector reconstruction. Both contracts went to joint ventures—one between Washington Group International and Black & Veatch, and another between Fluor and AMEC.[51]

During the past quarter, the U.S. government continued emphasizing smaller-scale, quick-impact projects. GRD-PCO's Small Scale Potable Water Program has funded nearly 150 projects throughout Iraq, with an average value of $270,000 per project. The program used more than $40 million in funding to directly contract local Iraqi firms.[52] USAID has funded 296 small-scale projects in the Water sector, with an average value of $47,000. The Commander's Emergency Response Program (CERP) and Commanders Humanitarian Relief and Reconstruction Program (CHRRP) funding streams, in addition to the IRRF

allocations, have obligated $56 million and $74 million, respectively, toward Water sector projects.[53] Figure 2-16 shows the status of Water sector funding.

KEY PROJECTS COMPLETED AND UNDERWAY

In November 2005, the Special Inspector General visited the *Erbil Water Treatment Plant,* a project that began in June 2004 and was 76% complete, as of late December 2005. The IG was impressed by the quality of work at the site but was concerned about cost overruns that occurred because of subcontractor shortfalls. The project was estimated to be complete by late April 2006, but an insurgent attack in December 2005 on a 16-truck convoy may cause a delay. Plans are underway to maintain the project timeline, and 12 of the trucks have been recovered.[54] SIGIR personnel previously completed several on-site water project inspections, including assessments of two water treatment plants in Baghdad, with mixed results. The results of those site visits are in the SIGIR July 30, 2005 Quarterly Report.

According to GRD-PCO, cost increases and schedule delays have caused the deferral of a number of Water sector projects. Design work is being completed for these projects, and will potentially be funded by Iraq or international donors at a later date.[55] Although only 25 projects were completed this quarter, others made substantial progress during the last quarter. Two projects were recently completed at the *Sweetwater Canal*, a man-made canal that runs slightly west of Basrah. The projects will ensure water quality and reliability for many years.[56] More than two million residents of the Basrah area rely on the nearly 150-mile-long canal to supply water for cleaning, cooking, and bathing.

During the past quarter, the *Nassriya Water Treatment Plant* progressed from 45% to 53% of completion. The project, which began in August 2004 and will benefit 550,000 people, is estimated to be completed in June 2006.[57] Sustainment efforts continue on Baghdad's first major sewerage plant renovations in more than 12 years—*Kerkh and Rustimiyah North and South*—which were completed on June 20, 2005. These plants together serve 80% of Baghdad.[58]

ORIGINAL FUNDING FOR SECTOR CUT IN HALF

The World Bank estimated in 2003 that $6.8 billion would be required to restore the sector in the short- and medium-term.[59] U.S. funding has laid substantial groundwork for the long-term reconstruction effort that Iraq must execute to bring its water infrastructure up to modern standards.[60] CPA originally requested $3.71 billion to reconstruct the Water sector in Iraq.[61] U.S. allocations exceeded this request in November 2003: Congress allocated $4.33 billion through the IRRF for the Water sector. In October 2004, allocations for the sector were reduced to $2.31 billion when funding was shifted to security, oil, and economic development.[62] Water sector allocations continued to be shifted to other sectors and are now reduced to $2.13 billion. Figure 2-17 shows the current

level of funding in the Water sector—less than half of its original allocation.[63]

Outputs of IRRF-funded Projects

Although the United States has successfully met CPA goals for sewerage projects, water project outputs have fallen well short of the 2003 goals. GAO previously reported that better performance measures and indicators are needed in the Water sector to help evaluate U.S. reconstruction efforts.[64]

Table 2-5 compares the status of current water project outputs relative to CPA goals.

A USAID audit published in June 2005 found that USAID Water sector projects were achieving their intended outputs.[68] But if individual projects are achieving their intended outputs, then the shortfall revealed by this chart could be explained by the low project completion rate. IRMO should examine the possibility of accelerating project starts.

Outcomes

From 1991 to 2003, access to safe drinking water in Iraq decreased. Before 1991, 95% of urban Iraqis and 75% of rural Iraqis had access to clean water, according to a needs assessment conducted by the United Nations (UN) and World Bank. By 2003, these figures had declined to 60% in urban areas and 50% in rural areas. Sanitation services reported similar decreases during this time period. Before 1991, sanitation services reached 75% and 40% of urban and rural Iraqis, respectively. By 2003, nearly 80% of Baghdad had sanitation access, but power outages caused shutdowns and blockages so severe that sewage backed up into

Current Water Project Outputs vs. CPA Goals

Output Metric	Pre-war Level (2003)	Stated Goal by CPA (2003)	End-state Goal after Deferral[65]	Current Status as of 11/30/05
Water–People with Potable Water Availability	12.9 million	23.4 million	12.85 million	8.25 million 2.75 million added*
Sewerage–People with Sewerage System Coverage	6.2 million	2.5 million[66]	5.6 million	5 million 4.5 million added*
Water Treatment Capacity	3 million m^3/day	10 million m^3/day[67]	2.25 million m^3/day	1.1 million m^3/day

*Outputs include total added since war and include IRRF and other funding streams
Sources:
Pre-war level: Department of Defense Working Paper on Iraq Status, November 2003; USAID Water Accomplishments, 2005.
Goals: Coalition Provisional Authority FY 2004 Supplemental Request to Rehabilitate and Reconstruct Iraq, September 2003; UN/World Bank Iraq Needs Assessment, 2003.
Current Status and End-state: Department of State Reconstruction Progress in Iraq – Briefing by U.S. Embassy Baghdad, November 30, 2005.

Table 2-5

Percent of Iraqi Population with Access to Potable Water

Benefit Metric	Pre-war Level (2003)	Stated Goal by CPA (2003)	End-state Goal after Deferral[73]	Current as of 11/30/05
Potable Water Access	50%	90% of population	49%	32%
Sewerage Access	24% (countrywide)	15% of urban population	22%	19%

Sources:
Pre-war level: Department of Defense Working Paper on Iraq Status, November 2003.
Goals: Coalition Provisional Authority FY 2004 Supplemental Request to Rehabilitate and Reconstruct Iraq, September 2003.
Current Status and End-state: Department of State Reconstruction Progress in Iraq – Briefing by U.S. Embassy Baghdad, November 30, 2005.

Table 2-6

the streets. In other urban areas, only 9% of the population had sewerage access, and there were no sewage pipes to rural areas of Iraq. The decreases in water and sewerage capability were in large part due to human and physical capital constraints (staff, funding, equipment, and spare parts).[69]

In 2003, Operation Iraqi Freedom largely spared water and wastewater treatment plants, but water treatment facilities were only operating at 35% capacity and wastewater treatment facilities at 25%, according to USAID.[70] Severe damage to the water distribution network had a significant impact on the Iraqi populace. In particular, Baghdad's water network suffered severe bomb damage that led to illegal tapping of the water supply.[71] Water problems were estimated to affect about 12.5 million people in Iraq.[72]

Currently, the status of the Water sector in Iraq is improving, but it is still in poor condition. Only 32% of Iraqis have access to potable water, and only 19% have sewerage access. The goals originally established for this sector were to increase potable water access to 90% of the population and sewerage access to 15% of the urban population (16.9 million people).

Table 2-6 summarizes data on Iraqi access to water relative to the original goals stated by the CPA.

Challenges

Three major issues confront the Water sector: sustainability, security, and program management.

SUSTAINMENT

SIGIR continues to be concerned about the sustainability of Water sector projects. A recent GAO report underscores the problem. Of the $200 million in completed Water sector projects that GAO reviewed, more than a quarter were not operating at all or were operating at lower capacity than expected. Several reasons were cited for these shortfalls, including theft of key equipment, unreliable power supply, insufficient spare parts and chemicals, and a shortage of adequate Iraqi staff to sustain projects.[74]

In March 2005, USAID was allocated $25 million to support O&M and logistics for one year.[75] With this money, USAID implemented the Water Sector Institutional Strengthening

Project, which provides on-site job direction to more than 1,000 Iraqi workers. And in March 2005, PCO provided $10 million to a major contractor for a 12-month training initiative in capacity development.[76] A major factor in sustainability, capacity development is defined in PCO's area of work as "the strengthening of human and institutional capabilities to support a society in its development of a more secure and sustainable economy, government, and infrastructure."[77] PCO also began using a formal risk matrix to evaluate the potential risk of failure for strategic and high-cost projects after hand-over to Iraqis.[78] GRD-PCO is also reworking its 2004 Capacity Development Plan for release soon. The main purpose of the plan is to lay out the basic roles and responsibilities for the sustainability of all agencies working in Iraq. The plan will also identify coordination and assessment mechanisms.[79]

Most recently, DoS set aside $110 million for sustainment in the Water sector.[80] Despite the increase in funding during the past few quarters, a SIGIR audit estimates that sustainment for the sector will cost $235 million for 2006-2007.[81]

SECURITY

The security concerns endemic to all sectors have had a significant impact on the Water sector. Last quarter, a key water main in Baghdad was sabotaged, leaving more than two million residents without drinking water according to government sources. A month later, a mortar attack led to the temporary closure of one of the main water purification plants. The closure affected more than three million Iraqis and, combined with the previous incident, led to demonstrations in Baghdad. Entire projects or components of projects must be cancelled to offset these increased security costs. Projects that are not cancelled are often severely delayed. For example, work on a sewer repair project was suspended for more than 100 days in 2004 because of security concerns. Another project on a wastewater plant was delayed for two months in early 2005 because insurgent threats drove away civilian contractors.[82]

PROGRAM MANAGEMENT

Program management issues have also had an impact on the effectiveness of U.S. efforts in the Water sector. Original CPA budget estimates assumed that operating conditions would be more benign. In general, PCO found that those estimates were 25-50% below actual costs.[83] Funding shifts allowed for far less U.S. allocations, and underestimated costs and funding delays became an enormous issue for this sector. The management challenges do not stop there: Finalizing the terms of contracts and actually executing projects have been a problem. In 2005, a senior GAO official reported that "U.S. agency and contractor officials have cited difficulties in initially defining project scope, schedule, and cost, as well as concerns with project execution, as further impeding progress and increasing program costs."[84]

OTHER SECTORS

SIGIR groups the remaining IRRF funds into four categories:

- Security and Justice
- Transportation and Communications
- Facilities and Services
- Reconstruction Management

Summary information for these sectors is provided below. A more detailed update on these sectors will appear in a future SIGIR Quarterly Report.

Security and Justice

Activities in the Security and Justice sector are aimed primarily at increasing the safety and security of the Iraqi people, including both national security and internal policing. This SIGIR sector review includes projects that DoD categorizes as Security and Justice and projects that DoS categorizes as Security and Law Enforcement; Justice, Public Safety, and Civil Society; or Democracy projects. This sector review does not attempt to capture the indirect security costs that may be included as part of contracts in other sectors. Tables 2-7 and 2-8 present an overview of the Security and Justice sector.

Security and Justice Sector Status of Funds, as of January 4, 2006

(BILLIONS)

	Allocated	Obligated	Expended
Security and Justice	$6.27	$5.89	$4.77

Table 2-7

Security and Justice Sector Status of Projects, as of January 1, 2006

Subsector	Total Project Cost (Billions)	Not started	Ongoing	Completed
Military Facilities	$0.9482	36	60	73
Democracy Building Activities	$0.6651	24	627	6885
Police Facilities/Training	$0.3170	35	90	287
Prisons/Courts	$0.2087	5	16	19
Border Enforcement	$0.1322	27	100	136
Fire Facilities	$0.0320	0	28	62
Points of Entry	$0.0255	1	4	8
Witness Protection	$0.0141	3	2	0
Investigations of Crimes Against Humanity	$0.0038	3	0	29
Total	**$2.35**	**134**	**927**	**7,499**

Table 2-8

Transportation and Communications

Activities in the Transportation and Communications sector are generally intended to link Iraqi people and cities together. This sector includes projects that DoD categorizes as Transportation and Communications projects and projects that DoS categorizes as either Roads, Bridges, and Construction projects or Transportation and Communications projects. Tables 2-9 and 2-10 present an overview of the Transportation and Communications sector.

Facilities and Services

SIGIR uses analysis of the Facilities and Services sector to capture all other reconstruction activities funded by IRRF 2 dollars. This sector includes projects that DoD categorizes as Buildings, Health, and Education and projects that DoS categorizes as Health Care; Education; Refugees, Human Rights, and Governance; or Private Sector Development. Tables 2-11 and 2-12 present an overview of the Facilities and Services sector.

Reconstruction Management

The Reconstruction Management sector includes funds dedicated to the administration and management of the reconstruction enterprise. It does not attempt to capture overhead costs of individual projects.

Transportation and Communications Sector Status of Projects, as of January 1, 2006

Subsector	Total Project Cost (Billions)	Not Started	Ongoing	Completed
Communications	$0.1386	0	5	5
Roads and Bridges	$0.0832	21	38	276
Expressways	$0.0434	0	3	0
Railroad Stations	$0.0371	3	17	79
Airports	$0.0365	4	7	5
Ports	$0.0256	3	4	17
Public Buildings Construction and Repair	$0.0052	0	19	1,382
Misc. Facilities	$0.0036	0	0	1
Postal Facilities	$0.0016	0	1	23
Total	**$0.37**	**31**	**94**	**1,788**

Table 2-9

Transportation and Communications Sector Status of Funds, as of January 4, 2006 (Billions)

	Allocated	Obligated	Expended
Transportation and Communications	$0.84	$0.66	$0.37

Table 2-10

Facilities and Services Sector Status of Projects, as of January 1, 2006

Subsector	Total Project Cost (Billions)	Not Started	Ongoing	Completed
Vocational Training	$0.1313	1	2	1
Primary Health Care Centers/Clinics	$0.1017	1	141	1
Hospitals	$0.0933	3	17	5
Schools	$0.0607	2	15	784
Market-based Reforms	$0.0600	0	1	0
Children's Hospital in Basrah	$0.0411	0	1	0
Agriculture	$0.0366	2	80	155
Institutional Reforms	$0.0318	0	0	1
Public Buildings	$0.0214	2	0	4
Education	$0.0214	0	89	897
Migration and Refugee Assistance	$0.0174	0	84	140
Business Skills Training	$0.0121	0	1	0
Civic Programs	$0.0103	0	6	447
Misc. Facilities	$0.0086	0	1	0
Health Care Equipment Procurement	$0.0020	0	41	595
Nationwide Hospital and Clinic Improvements	$0.0001	0	1	3
Total	**$0.65**	**11**	**480**	**3,033**

Table 2-11

Facilities and Services Sector Status of Funds, as of January 4, 2006 (billions)

	Allocated	Obligated	Expended
Facilities & Services	$2.95	$2.72	$1.75

Table 2-12

SOURCES AND USES OF FUNDS

SIGIR is required to report on the oversight of and accounting for funds expended in Iraq relief and reconstruction, as prescribed in P.L. 108-106, as amended. Three primary funding sources support reconstruction and relief activities: U.S. appropriated funds, Iraqi funds, and donor funds.

To date, U.S. appropriated funds total more than $30 billion, including:

- reconstruction and relief funding authorized in April 2003 (IRRF 1)
- reconstruction and relief funding authorized in November 2003 (IRRF 2)
- funding for urgent humanitarian and reconstruction efforts authorized in September 2004
- funding approved in May 2005 to support the Iraqi Ministry of Defense and Ministry of Interior security forces

Iraqi funds—comprising vested funds, seized funds, and the DFI—have been an important source for reconstruction efforts, particularly during the CPA's tenure. As of December 31, 2005, these funds totaled $39.9 billion:

- Vested (frozen) funds amounted to $1.72 billion.
- Seized funds, including confiscated cash and property, totaled just under $1 billion.
- The DFI—drawn primarily from oil proceeds, the Oil for Food program, and repatriated funds—comprised 93% of the overall total of Iraqi funds.

Donor funds and humanitarian assistance totaled $17.8 billion, as of the end of 2005. Nearly 78% or $13.9 billion of this total was derived from donor pledges in bilateral support of loans and grants for Iraqi reconstruction. Most pledged donor funds have yet to be delivered.

For a detailed look at the sources and uses of funds for Iraq reconstruction, see Appendices C, D, E, and F.

CONTRACTS UPDATE

SIGIR's enabling legislation requires a reporting of contract data related to IRRF. No single U.S. government information system currently captures comprehensive project, contract, and financial information. To address this deficiency, SIGIR designed and built the SIGIR Iraq Reconstruction Information System (SIRIS) as a repository for all project, contract, and financial data on Iraq reconstruction. SIRIS is not intended as a financial management, contract management, or project management system. SIRIS is not a transaction-based system, but rather a 'warehouse' of Iraq reconstruction data from all of the organizations authorized to obligate IRRF monies. SIRIS houses project data reported by each executing agency, as well as contracting actions from either electronically scanned documents or manual data entry, using copies of the contract documents themselves.

Since the last Quarterly Report to Congress, SIGIR received 361 new contracting actions from Joint Contracting Command-Iraq contracting officers that obligated more than $119 million. These contracting actions comprise modifications to existing contracts, as well as new task orders issued and contracts awarded. More than $18 million in IRRF obligations were issued in 29 new contracting actions. The majority of the contracting actions were funded by the Iraq Security Forces Fund: 199 contracting actions were awarded using this fund type, obligating nearly $55 million. Additionally, SIGIR received 91 modifications to previously awarded contracts, which increased overall obligation amounts by almost $43 million.

To date, SIGIR has received 3,637 contracting actions, which have obligated $12.7 billion. Of those, 1,603 have been funded by the IRRF with total value exceeding $7.8 billion. More than $5.2 billion of that total was obligated.

For a complete list of all contracting actions received by SIGIR to date, see Appendix I.